

We claim:-

1. An aqueous dispersion of a reactive size which comprises a cationic polymer comprising vinylamine units as a protective colloid, wherein the protective colloid comprises less than 0.0001% by weight, based on the protective colloid, of diketenes.
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2. The aqueous dispersion according to claim 1, wherein the protective colloid is substantially free of diketenes.
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3. The aqueous dispersion according to claim 1 or 2, which comprises less than 1% by weight, based on the aqueous dispersion, of a cationic starch.
4. The aqueous dispersion according to claim 3, which is substantially free of cationic starch.
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5. The aqueous dispersion according to any of claims 1 to 4, wherein the cationic polymer comprising vinylamine units comprises from 1 to 100 mol% of hydrolyzed homo- or copolymers of N-vinylformamide.
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6. The aqueous dispersion according to any of claims 1 to 5, wherein the cationic polymer comprising vinylamine units has an average molecular weight Mw of from 1000 to 2 million.
- 25 7. The aqueous dispersion according to any of claims 1 to 6, wherein the content of protective colloid is from 10 to 100% by weight, based on the reactive size.
8. The aqueous dispersion according to any of claims 1 to 7, wherein C₁₂- to C₂₂-alkylketene dimers, C₅- to C₂₂-alkyl- or C₅- to C₂₂-alkenylsuccinic anhydrides and/or C₁₂- to C₃₆-alkyl isocyanates are used as reactive sizes.
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9. The aqueous dispersion according to claim 8, wherein the content of reactive size is from 1 to 50% by weight, based on the total weight of the dispersion.
- 35 10. A process for the preparation of an aqueous dispersion according to any of claims 1 to 9, wherein the reactive size and the cationic polymer comprising vinylamine units are homogenized in an aqueous mixture in the presence of an anionic dispersant at from 20 to 100°C under the action of shear forces.
- 40 11. A process for the engine sizing of paper, board and cardboard by adding an aqueous dispersion according to any of claims 1 to 9 to an aqueous slurry of cellulose fibers and draining the paper stock.

12. The use of an aqueous dispersion according to any of claims 1 to 9 as an engine size in the production of paper, board, cardboard and liquid packaging cardboard.